INDEX.

PAGE

Age of Gymnastics 129
Alaska, Agricultural and Mineral Resources of 766
Allbutt, T. C., Brain-Forcing 217
Allen, G., Origin of Fruits 597
American Influence on Civilization 495
Amphlett, J., Genealogy 583
Ant, The Agricultural 123
Anthropology, Progress of 668
Ants, how they distinguish each other 638
Appleton, George S. 497
Ararat, Mount, Ascent of 381
Archæological Researches in the Great American Bottom 506
Archæology, North American 510
Armadillos, Gigantic Extinct. (Illustrated.) 189
Artificial Precious Stones 589
Associations, The Scientific 745
Astronomical History of Worlds 571
Aurora Borealis 508

Bain, A., Education as a Science 302, 660
Bald Mountain 635
Barnett, S., Metric Reform 82
Bathing as a Cause of Ear-Disease 634
Baumhauer, E. H. von, The Teredo and its Depredations 400, 545
Beard, G. M., The Scientific Study of Human Testimony 53, 173, 328
Bird-eating Trout 124
Birds' Eggs and Birds' Nests 124
Black, J. R., Night Air in Cities 105
Books noticed:
"Treatise on Chemistry" (Roscoe and Schorlemmer) 112
"Diseases of the Eye" (Carter) 113
"History of England in the Eighteenth Century" (Lecky) 113
"Natural Law" (Simcox) 114
"Dictionary of Music and Musicians" (Grove) 114
"Proteus, or Unity in Nature" (Radcliff) 114
"Scriptural Doctrine of Retribution" (Beecher) 115
"Vital Magnetism" (Parson) 115
"Myths and Marvels of Astronomy" (Proctor) 116
"Creed of Christendom" (Greg) 116
"Aneroid Barometer" 116

Books noticed: PAGE

Princeton Review 117
"Creed and Deed" (Adler) 117
"Determination of Minerals" (Frazer) 117
"Mound-making Ants" (McCook) 117
"Mechanics of Ventilation" (Rafter) 118
"Engineering Construction" (Shields) 118
"Foundations" (Gaudard) 118
"Star-gazing" (Lockyer) 244
"Spectrum Analysis" (Lockyer) 244
"Epoch of the Mammoth" (Southall) 245
"Essays, Chemical and Geological" (Hunt) 247
"Pottery" (Nichols) 248
"Primitive Property" (Laveleye) 249
"Syllabus of Lectures on Anatomy" (Stowell) 249
"Synoptical Flora of North America" (Gray) 371
American Journal of Mathematics 372, 752
"Tropical Nature and other Essays" (Wallace) 373
"The Sugar-Beet in North Carolina" (Le Doux) 375
"Doctrine of a Future Life" (Alger) 375
"Insanity in Ancient and Modern Life" (Tuke) 376
"Boy Engineers" (Lukin) 376
"Intercultural Tillage" (Sturtevant) 376
Journal of the Academy of Natural Sciences of Philadelphia 376
"Chemical Experimentation" (Sadtler) 376
"At the Court of King Edwin" (Leighton) 376
"Adamites and Preadamites" (Winchell) 498
"Principles of Teaching" (Johonnot) 501
"Psycho-Physiological Sciences" 502
"Flowers and Ferns of the United States" (Meehan) 502
"Experimental Science Series" (Mayer) 503
"Matter and Motion" (Maxwell) 503
"Comparative Psychology" (Bascom) 504
"Wisconsin Geological Survey" (Chamberlin) 504
"State Regulation of Vice" (Powell) 504
"Mineralogy" (Collins) 504
"Wheeler's Surveys" 504
"Sanitary Science" (Richardson) 505
"Cerebral Hyperæmia (Hammond) 505
"Agriculture" (Tanner) 505
"Music and Musicians" (Grove) 505
"Lessons in Cookery" 625
"Annual Record of Science and Industry" (Baird) 628
"Ethics of Positivism" (Barzellotti) 629
"Elements of Dynamic" (Clifford) 630
"Physical Technics" (Frick) 630
"Current Discussions." II. 631
"Ferns of Kentucky" (Williamson) 631
"Survey of the Territories" 631
"Manual of the Apiary" (Cook) 631
"Vertebrates of the Northern States" (Jordan) 631
"Twenty-five-Cent Dinners" (Corson) 632

Books noticed: PAGE
"Minnesota Academy of Natural Sciences" . . . 682
"History of the Growth of the Steam-Engine (Thurston) . . . 749
Journal of Physiology . . . 751
"Democracy in Europe" (May) . . . 753
"Report on Forestry" (Hough) . . . 755
"New Cyclopædia of Chemistry" . . . 755
"Physics of the Infectious Diseases" (Logan) . . . 756
"On the Nature of Things" (MacVickar) . . . 756
"Art Hand-Books" (Carter) . . . 756
"Principles of Light and Color" (Babbitt) . . . 756
"Native Flowers and Ferns of the United States" (Meehan) . . . 757
"Kensington Science-Lectures" . . . 757
"Care of our Eyes" (Angell) . . . 757
"Short Studies of Great Lawyers" (Brown) . . . 757
"The Dance of Death" (Herman) . . . 757
Botanical Science, Development of . . . 119
Brain, Study of the . . . 237
Brain-forcing . . . 217
Brick Walls, Discoloration of . . . 379
Brownell, T. F., Curious Systems of Notation . . . 420

Cactus as a Lava-Breaker . . . 511
Calculating-Machine, A New . . . 761
Cardiff Giant and other Frauds . . . 197
Carpet-Beetle . . . 634
Catholicism and Eternal Punishment . . . 368
Ceremonial Government, Evolution of . . . 25, 146, 292
Chahoon, G., Water-Supply of Rivers . . . 288
Character, Influence of Chemical Research on . . . 764
Chinese Loess . . . 242
Civilization and Science . . . 257, 385, 529
Clarke, F. W., Scientific Courses of Study . . . 187
Classics, The, in Germany . . . 628
Clearing Land with Dynamite . . . 190
College of the City of New York . . . 106
Color-Blindness . . . 120
Composite Portraits. (Illustrated.) . . . 460
Conscience in Evolution . . . 513
Consciousness under Chloroform . . . 694
Contagious Diseases, Prevention of . . . 381
Cooke, J. P., Jr., The Radiometer and its Lessons . . . 1
Cookery and Education . . . 620, 748
Copying by Photography . . . 251
Copyright, International . . . 618
Creosote as a Timber-Preserver . . . 382
Curious Systems of Notation . . . 420

Davis, W. M., Formation of Nebulæ . . . 389
Davis, William Monroe . . . 625
Death of a Generation . . . 122
Development of Botanical Science . . . 119

PAGE

Devil, The, and the Oaks 507
Discoloration of Brick Walls 379
Discolored Sea-Water 253
Disinfection of Streets and Sewers 250
Distribution of Prairie and Forest 122
Dread and Dislike of Science 410
Drowning, Pain in 93
Du Bois-Reymond, Civilization and Science 257, 385, 529
Du Bois-Reymond, Sketch of. (Portrait.) 360
Dynamite, clearing Land with 120

Earthquake in North Carolina 635
Eccles, R. G., Radical Fallacy of Materialism 354
Eclipse, Solar, of 1878 633
Edison, T. A., Sketch of. (Portrait.) 487
Education as a Science 302, 660
Education, Liberty of Science and 107
Electricity in Thunder-Storms 689
Electric Light 380, 634
Embryo Life, Studies of 382
English Schools, Science in 558
Eternal Punishment, Catholicism and 368
Evolution of Ceremonial Government 25, 146, 292
Evolution, The Place of Conscience in 513
Evolution Theory, is it atheistic? 760
Eyes of Deep-Sea Animals 382

Facts about the Rain-Tree 119
Finite and Infinite 73
Fish-Worm, A Big 508
Fodder-Plant, A Drought-Proof 763
Fog-Signals. (Illustrated.) 275
Fog-Signals, Recent Experiments on 380
Foote, Elisha, Electricity in Thunder-Storms 689
"Forest-Beds" of Ohio, Age of 507
Forests, Atlantic and Pacific, Differences between 762
Fossil Mammal from the Jurassic of the Rocky Mountains 377
Fowle, T. W., Conscience in Evolution 513
Fruits, Origin of 597
Fuel, Domestic, Grass and Straw as 761

Galton, F., Composite Portraits 460
Galvanic Cell, A New Form of 765
Gases, Liquefaction of the. (Illustrated.) 78
Gates, N. J., The Relation of the Finite to the Infinite 73
Genealogy 583
Geological History of New York Island and Harbor. (Illustrated.) 641
Geological Question, An Interesting 765
Gigantic Extinct Armadillos. (Illustrated.) 139
Glass, A New Method of annealing 764

PAGE
Grape-Culture 254
Grinnell, G. B., Sketch of Prof. Marsh 612
Grote, A. R., Man and his Structural Affinities 429
Growth of Photography 119
Growth of the Steam-Engine 64
Gymnastics, The Age of 129

Hallucinations of the Senses 698
Hanging, The Question of Pain in 349
Harpy Eagle 250
Hartt, C. F., Sketch of. (Portrait.) 231
Hasheesh 482
Health-Lift, Disadvantages of the 254
Henry, Joseph 365
How New York got a College 106
How Sound and Words are produced. (Illustrated.) 43
Huxley's Address at the Harvey Tricentenary 396
Huxley, Progress of Anthropology 668

Illustrations of the Logic of Science 203, 470
Infant's, An, Progress in Language 587

Journalism, Progress of 241

Lake-Dwellers, how they lived 689
Land, clearing of, with Dynamite 120
Land-Slides, Remarkable 121
Language, An Infant's Progress in 587
Le Conte, J., Science and Mental Improvement 96
Lewes, G. H., The Dread and Dislike of Science 410
Liberty of Science and Education 107
Life, Monera and the Problem of 455
Lightning-Rods 509
Liquefaction of the Gases. (Illustrated.) 78
Lockyer, J. N., Water-Waves and Sound-Waves 166
Locomotive-Whistles 126
Logic of Probabilities 286
Logic of Science 203, 470

Magnets, Floating, An Experiment with 380
Man and his Structural Affinities. (Illustrated.) 429
Mars, its Inner Moon 383
Marsh, O. C., Sketch of. (Portrait.) 612
Materialism, The Radical Fallacy of 354
Maudsley, Dr., Hallucinations of the Senses 698
Medico-Psychological Rubbish 507
Meteorological Notes 125, 636
Metric Reform 82
Monera and the Problem of Life 455, 563, 677
Monkeys, their Dislike for Snakes 379
Montgomery, E., Monera and the Problem of Life 455, 563, 677

PAGE
Moquis, their Sun-Worship 378
Morse, E. S., Sketch of. (Portrait.) 102
Motion, Voluntary 444
Mountains, how made 762
Müller, Max, on the "Origin of Reason" 111
Muslin Glass 251

Natural History, New Fact in 510
Nebulæ, The Formation of 339
Nebulæ, Variability of 251
Newberry, J. S., Geological History of New York Island and Harbor 641
New York, how it got a College 106
Night-Air in Cities 105
Nitrification 638
Notation, Curious System of 420
Notes 127, 255, 383, 511, 640, 767

Organ-Piano 378
Origin of Fruits 597
Origin of Reason 111
Oswald, F. L., The Age of Gymnastics 129
Oustalet, E., Pygmy Monkey 184

Pain in Drowning 93
Pain in Hanging 349
Peirce, C. S., Logic of Science 203, 470
Pennsylvania Oil-Regions 252
Personal Reminiscences of some Deceased Savants 20
Photographic Process, A New. (Illustrated.) 441
Photography, copying Designs by 251
Photography, Growth of 119
Plant and Animal Life, Analogies of 508
Poisons of the Intelligence 482
Pollock, F., An Infant's Progress in Language 587
Prairie and Forest, Distribution of 122
Probabilities, Logic of 236
Protoplasm, The Study of 746
Pygmy Monkey. (Illustrated.) 184

Radiometer, The, and its Lessons 1
"Rain-Tree," Facts about the 119
Reason, Origin of 111
Relation of the Finite to the Infinite 73
Religion and Science at Vanderbilt University 492
Reminiscences, Personal, of some Deceased Savants 20
Research, Systematic Promotion of 758
Richet, C., Hasheesh 482
Russia in Europe 635
Ryder, J. A., Gigantic Extinct Armadillos 189

Salt Lake 253

PAGE
Sap, New Theory of the Flow of 767
Science and Education, Liberty of 107
Science and Mental Improvement 96
Science in the English Schools 558
Science in Relation to Teaching 681
Science, the Dread and Dislike of 410
Scientific Courses of Study 187
Scientific Study of Human Testimony 53, 173, 328
Sea-side Studies. (Illustrated.) 812
Sedgwick on "Vestiges of Creation" 242
Senses, Hallucinations of the 698
Septic Organism, A New 511
Setting Tires with Hot Water 122
Sewer-Building 121
Shaw, G. M., Sound and Words 43
Silk-School Farm 759
Snake-Affection 126
Sound and Words. (Illustrated.) 43
Sound, Magnifying 367
Sparrow, The English 687
Spider, A Magnetized 126
Spence, P., Voluntary Motion 444
Spencer, H., Ceremonial Government 25, 146, 293
Spencer, H., Consciousness under Chloroform 694
Steam-Engine, Growth of the 64
Sterne, Carus, Artificial Precious Stones 539
Stockwell, G. A., The Cardiff Giant and other Frauds 197
Streets and Sewers, Disinfection of 250
Studies of Embryo Life 382
Study of the Brain 237
Subterranean Water-Courses 124
Sun-Worship among the Moquis 378

Teleological Ideas, how acquired 760
Tenney, S., Sea-side Studies 812
Teredo, The, and its Depredations. (Illustrated.) 400, 545
Testimony, Scientific Study of 53, 173, 328
Thurston, R. H., The Growth of the Steam-Engine 64
Timber preserved by Creosote 382
Timber, Rapid Decay of 639
Tires, setting, with Hot Water 122
Tissandier, G., Liquefaction of the Gases 78
Tracy, R. S., Pain in Drowning 93
Tracy, R. S., Pain in Hanging 349
Tracy, R. S., Yellow Fever 714
Trout, Bird-eating 124
Tyndall, J., Recent Experiments on Fog-Signals 275

Variability of the Nebulæ 251
Vaughan, D., Astronomical History of Worlds 571
Vestiges of Creation, Sedgwick on 242

PAGE
Vesuvius, Threatened Outbreak of 378
Vision, Peculiarities of 510
Vogt, Carl, Personal Reminiscences of some Deceased Savants 20
Voluntary Motion 444

Water-Courses, Subterranean 124
Water for Domestic Uses 759
Water-Supply of Rivers 288
Water-Waves and Sound-Waves. (Illustrated.) 166
West, Charles, Logic of Probabilities 236

Yellow Fever 714
Yellow Fever, and what to do about it 747
Yellow Fever, Artificial Cold in the Treatment of 763

END OF VOL. XIII.